KING. (A.F.A.)

THE

Natural Rectification of Malpresentations,

AND ITS IMITATION BY ART.

BY

A. F. A. KING, M.D.,

Prof. of Obstet., etc., in the Med. Dept. of the Columbian University, Washington, D. C., and in the University of Vermont. Member of the Amer. Gynecol. Soc.; of the British Gynec. Soc.; of the Wash. Obstet. and Gynec. Soc.; and of the Medical, Philosophical, Anthropological, and Biological Societies of Washington, D. C., etc.

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1. *The title explained.*—The title of this paper is not sufficiently explicit, nor could I easily make it so without sacrificing brevity. My object is to study the influence of *thigh-pressure—pressure of the flexed thighs upon the antero-lateral regions of the abdomen, produced by certain postures* (notably by squatting)—*as a factor in the natural rectification of transverse or oblique presentations*, and other malpositions of the child.

2. *Novelty of the subject.*—While the literature of obstetrics abounds with elaborate essays on "posture during parturition," and while the same subject has received attention in nearly all text-books, in no instance, so far as my researches extend, has any author directly, or even indirectly, referred to the factor of *thigh-pressure* in changing the position of the fetus as here proposed.

3. *This study necessarily theoretical.*—Since transverse presentations, to which this paper will chiefly refer, only occur once in about two hundred and fifty labors, it is not likely that

my opportunities for clinical observation will afford me the occasion for demonstrating the practice I propose within any reasonable time. I am, therefore, only able now to present theoretical views, which, however, I trust may be sufficiently well founded to enlist the co-operation of others who may possess better facilities for demonstration. Speculation is the pioneer of discovery. If there be any virtue in the methods proposed, it may as well be demonstrated by one as by another, so far as concerns the progress of our science and art, which is the main object in view.

4. *Necessity for caution in studying nature.*—If, in our study of any natural process, *one important factor*, among others, by which Nature accomplishes the desired consummation, *be omitted*, then our understanding of that process necessarily becomes incomplete and our conclusions liable to error. And thus, I think, have our studies of natural labor—especially the study of its mechanism—been rendered imperfect by our leaving out, or not sufficiently taking in, the element of *posture* as a modifying factor. Our present understanding of the mechanism of labor is based, for the most part, upon the observations of Naegele and his successors, but these observations have been uniformly made upon women *in the recumbent posture.* No one, so far as I know, has watched and demonstrated this mechanism throughout its several stages while the woman was sitting, kneeling, or squatting. Hence the conclusion that in these latter instances the mechanism is exactly the same as when the woman is recumbent is only assumed, not proven. So, too, if the views propounded in this paper be correct, it will be evident that our ideas concerning malpresentations and their natural termination have also suffered from our leaving out one of the mechanical influences of posture that *normally belonged to primitive woman, and which is usually deficient in the civilized one.* The study of natural labor in women who follow the customs, fashions, and instructions of modern obstetrics cannot be a study of Nature, pure and simple, but of Nature modified and incumbered by artificial interferences. The highest aim of our art is to imitate and assist Nature, but we must be sure that our notions of Nature's methods are not imperfect or erroneous. As Denman wrote, more than half a century ago ("Pract. of Mid.," Am. edition, 1825, p. 453): "In the most perfect state of society, all just and true knowl-

edge in this art" (obstetrics) "being founded upon observation of the proceedings of Nature, and all sound practice upon the imitation, the well-judging practitioner would recur to the consideration of the *primitive state.*" Woman (like man) has inherited her skeleton, her pelvis, muscles, and nervous system from numberless generations of ancestry extending back through a long wilderness of ages preceding the recorded history of man, compared with which the few thousand years of modern time are scarcely more than the swing of a pendulum. And whatever slight modifications of recent date may have occurred, there can be little question that these fundamental structural inheritances confer upon her (*other things being equal*) the disposition to perform the parturient act in the same manner now as was common with her progenitors thousands of years ago. To study, therefore, the *natural* process of labor, we must study primitive woman—woman and the earth that she inhabits, not woman bolstered up in bed with the hundred other appurtenances of civilized life. A pregnant woman is liable to fall in labor at any hour and in any place; she knows not when nor where. The earth is always with her: not so the productions of a furniture shop. The parturient capacities she has inherited would be manifestly imperfect if they required the coincident aid of any exterior artificial appendage. The silent, automatic, prehistoric evolution of a woman's organism could no more anticipate the construction of, and adapt itself to use, beds, chairs, etc., than a tree of the forest could anticipate, and provide itself with protection against, the woodman's axe. I repeat, therefore, if we would understand *natural* parturition, pure and simple, we must study primitive woman—woman of the forest and the field.

5. *The squatting posture more frequently assumed by primitive than civilized woman.*—According to Dr. George J. Engelmann, whose elaborate paper on "Posture in Labor" appeared in 1880 (Trans. Amer. Gynec. Soc., 1880, pp. 182–184, etc.), a squatting posture is still assumed during labor in some parts of Russia and Great Britain, also in Persia, Arabia, Egypt, Kaffraria, Wazegua, Guatemala, Polynesia, West Micronesia, as well as among various Indian tribes, Mexicans, half-breeds, negroes, and the lower class of whites in North America. This posture is, however, repugnant to the refined civilized woman, and for the reason, most likely, that it sug-

gests defecation. In fact, Dr. Engelmann very properly remarks (p. 196) that "we may, in a general way, consider all postures as squatting which resemble that assumed in defecation."

Now, with regard to the influence of this posture as a factor in the rectification of malpresentations, we must not lose sight of the fact that primitive woman also resorted to the squatting attitude *during defecation*, while the refined civilized woman does not, but performs the act upon a commode or the elevated seat of her closet.

We observe, then, this difference between primitive and modern woman: viz., that during pregnancy, before labor—*when a transverse* (really only oblique) *position of the child is easily rectified by suitable external pressure*—the squatting posture is frequently resorted to *during defecation* by primitive woman, and not by the civilized one; and the same difference, as we have seen, is observed *during labor*. If, therefore, it can be shown that the thigh-pressure produced by this posture exerts any material influence in changing the position of the child, we cannot afford to omit the recognition of the circumstance in our study of *natural* parturition.

6. *Mechanism of thigh-pressure, produced by squatting, in the rectification of oblique positions of the child during and before labor.*—It is scarcely necessary to define the squatting posture. Any one of my readers may demonstrate it for himself: let him rise from his chair and squat; and in doing so, if he will place his closed fist, or even his flat hand, in the vicinity of Poupart's ligament, between the acetabulum and the abdominal wall, he will find his hand pinched and compressed between the thigh and the abdomen, and with considerable force, varying, however, with the degree of his *embonpoint*.

Now let us take a case of oblique position of the child during pregnancy, which, if not corrected, becomes a transverse or shoulder presentation during labor. The most common of these presentations is the dorso-anterior position of a right-shoulder presentation. The head is on the left iliac fossa, the occiput being usually both visible and tangible as a projecting tumor over the left antero-lateral margin of the pelvic brim, in the vicinity of the acetabulum or ilio-pectineal eminence; the other end of the fetal ovoid—the breech—is on the other side

of the pelvis, high up towards the crest of the ilium or above it. (See Fig. 1, page 567.)

In such a case, what takes place when the squatting posture is assumed? The thigh gradually approaches the abdomen, and compresses any intervening body or projection that may interfere with close approximation of the flexed thigh and antero-lateral margin of the pelvis, no matter whether the intervening body be outside the abdomen (as the closed fist previously referred to), or inside of it, like any projecting part of the fetus. The thigh acts as a *lever*—a lever of the second kind, the resistance (or "weight") being between the fulcrum and the power. The thigh-bone is the lever itself. The fulcrum is the acetabulum. The power is the pressure of the head of the tibia upon the femoral condyles at the very *end* of the lever; and the resistance is (when it exists) the projecting body coming in contact with the lever, between the fulcrum (acetabulum) and the power applied at the femoral condyles. In the transverse presentation just cited for illustration, the intervening body on the left side of the pelvis would be the *occiput of the child's head projecting over the antero-lateral margin of the pelvic brim, near the acetabulum.* This projection, being very close to the fulcrum, would, if it did not slip aside out of the way—in one or other direction—receive the brunt of the compression. Or, again, if we choose to consider the body of the woman, when leaning forward in the squatting position, as another lever of the second kind, the two levers being united at the acetabular hinge like a pair of nut-crackers, then, as the arms of the two levers approached each other in the act of squatting, any intervening body, especially near the hinge, would be forcibly compressed if it did not glide out of the way as above stated. It is scarcely possible that a rounded, slippery (and, during pregnancy, almost floating) body like the fetal head, when gradually compressed by another somewhat rounded column—viz., the thigh—would *not* slip on one side, particularly so when we consider that between the head itself and the thigh-bone are placed a number of apposed, smooth, gliding surfaces, viz., the apposed *skin*-surfaces (of the thigh and abdomen); *peritoneal* surfaces (between uterine and abdominal walls); *decidual* surfaces (between the vera and reflexa); and the surface of the child's scalp in contact with the amnion, etc. Moreover, while the thigh-lever comes in contact with and

compresses that portion of the child's head which is projecting over the left antero-lateral margin of the pelvic brim, there is, on the directly opposite side of the pelvis—viz., in the locality of the right sacro-iliac synchondrosis—no bony resistance to the receding head, but, on the contrary, an ample vacuous space, viz., that situated between the sacral promontory and the right postero-lateral margin of the pelvic brim.

Still continuing our study of the illustrative case before cited, we find that the thigh-lever on the *right* side approaching or first making contact with the abdomen from below in the vicinity of the acetabulum, and the surface of contact being extended from below upwards as the act of squatting becomes complete, *the breech end of the fetal ovoid will be pressed upwards and inwards towards the median line*—in fact, changed from its oblique position to its normal place in the fundus uteri. As the child lies usually obliquely transverse, as we have said, with the curved surface of its convex back in front, the part that will first come in contact with the thigh-lever on this *right* side of the woman's pelvis will be the *lumbar or sacral* regions of the child's back—that is to say, very *near* the pelvic *end* of the fetal ovoid.

Thus, then, we have, in this illustrative case, when the squatting posture is assumed, thigh-pressure *on the two ends of the fetal ovoid:* on the left side the projecting occiput is powerfully compressed (being near the hinge) by a force approaching from the antero-lateral direction, tending to push, or rather displace, it diagonally backwards and laterally, in fact towards the inlet of the pelvis; while on the other end of the fetal ovoid, as just stated, the thigh-pressure tends to lift the breech upwards and inwards towards the fundus uteri. Thus the transverse, or oblique, presentation becomes a normal head presentation.

The more readily to appreciate that the contact of thigh-pressure is really near the two *ends* of the fetal ovoid, we must remember that the shaft of the thigh-bone is even *more external than the acetabulum*, owing to the length and direction of the *neck* of the os femoris, "which, in the adult female, approaches more nearly a right angle with the shaft than it does in the male and ante-puberic girl" ("Gray's Anat.," p. 158, 2d Am. ed., 1862).

This is very well shown in Fig. 1. By reference to page 145 of Lusk's work, Fig. 86, showing front view of pelvis

with ligaments (from Quain), it will be seen that the upper part of the thigh-bone projects laterally about as far as the iliac crest, and yet not so far but that the ample cushion of fat and muscles covering the bone, especially along its inner surface, shall inevitably bring the femoral column in contact with the antero-lateral region of the abdomen in the act of squatting.

The mechanism of rectification, by thigh-pressure, in the dorso-anterior position of a *left* shoulder presentation—the head being on the left iliac fossa—will be the same, except that the

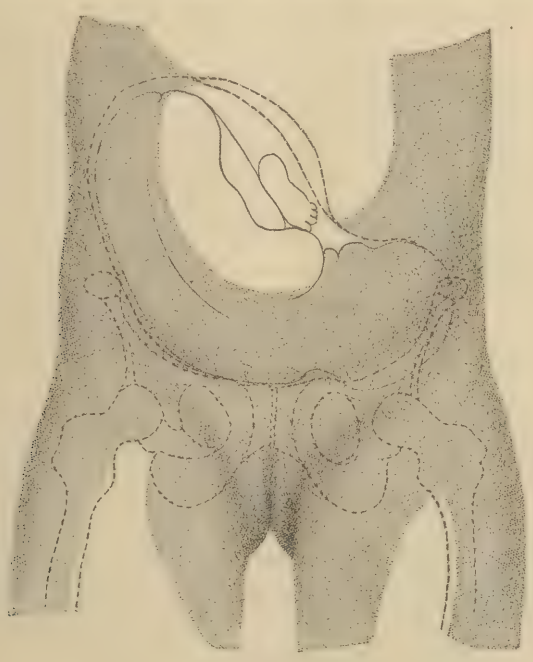

Fig. 1.

events occurring on the right and left sides of the pelvis will be, respectively, changed to left and right.

The mechanism of dorso-*posterior* positions of the fetus, it may be presumed, involves the same principles, though the rectification would not, we should think, be so easily accomplished as in the more common dorso-*anterior* positions.

7. *Variation in the amount and direction of thigh-pressure produced by modifications of posture.*—In the foregoing theoretical study we have, thus far, only considered the *squatting* posture (the posture in which thigh-pressure would *à priori*

appear to be most pronounced). We have also considered the act of squatting as if it were always the same, and as if it were symmetrical, so that the thigh-pressure were alike on both sides. It must now be observed that *kneeling*, and even *sitting*, provided the body of the woman lean forward sufficiently, will also bring the thigh-columns in contact with the antero-lateral regions of the abdomen. Moreover, the act of squatting itself may be varied (the thigh-pressure varying accordingly) in many ways, depending (1) upon the degree to which the thighs are adducted or abducted during the act; (2) upon the degree of forward inclination of the woman's body; (3) upon the greater or less distance between the feet, and upon one foot being, or not, in advance of the other. Again, (4) instead of being always symmetrical, the sole of one foot may be flat upon the ground, the other foot having only the toes or anterior end upon the ground. The corresponding thigh, in the former instance, will approach the abdomen much more decidedly than in the latter one. A woman may kneel with *one* lower extremity and squat with the *other*. Such variations might be further multiplied. Whether, in malpositions of the child, the instinctive sensations and inclinations of primitive woman prompted her to modify the squatting posture, and thus thigh-pressure, in a manner suited to rectify the various modifications of bad presentations, we cannot say; but, if postures of this kind come to be employed as a method of rectification, it will be necessary, in the absence of such instinctive inclinations, to study the influence of each posture (and its varieties) upon each malpresentation (and its varieties). That is to say, the *degree*, *direction*, and *location* of thigh-pressure, in the several instances, will require to be known, and selection made accordingly.

To illustrate the variation in thigh-pressure from variation of posture, I here insert seven figures photographed from life, the model being a white, multiparous woman, of middle age, endowed with considerable *embonpoint*, but presumably not pregnant. Figs. 2 and 3 present, respectively, a side and front view of the *kneeling* posture, the thighs being nearly in apposition, and the body slightly inclined forwards. In both instances the antero-lateral support of the abdomen, in a moderate degree, is very well shown.

Should the thighs, while still kneeling, be more widely separated from each other and the woman lean forward, the


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pendulous abdomen (and its pregnant uterus, if it had one) would fall forward between the thighs, the thigh-pressure, *anteriorly*, being diminished, as shown in Fig. 4; but the *lateral* pressure would still be present and tend to shorten the transverse space of the abdominal cavity. If now the woman *kneel* with one limb and *squat* with the other, it is evident the antero-lateral pressure of the thigh upon the abdomen will be much greater on the side of the squatting limb than on that of the kneeling one, as shown in Fig. 5.

Again, in squatting on both limbs, one foot being flat upon the ground, the other resting upon the toes (as in Fig. 6), it will be seen that upon the side where the sole of the foot rests flat, the surface of contact of the thigh with the abdomen is greater, and the *amount* of antero-lateral pressure also greater, than upon the side where the toes *only* touch the ground, the corresponding thigh being more nearly horizontal.

The next figure (7) shows a nearly front view of a similar squatting posture, the left foot being flat upon the ground, the right one on its toes. It will be observed that on the right side the antero-lateral pressure is more decidedly *upwards* (*i. e.*, more *anterior* than *lateral*) than on the left side, where the anterior (or upward) and lateral pressure appear about equal to each other. Note how in this instance the thigh columns forcibly compress and support the protruding abdomen, and that the surface of femoro-abdominal contact extends to within a few inches of the umbilicus. The body of the woman in this instance is comparatively erect, *not* leaning forward as far as she might do.

In the next figure (8) is presented the most extreme antero-lateral pressure that can be obtained by posture, the woman squatting with both feet flat upon the ground, and the body leaning forward so that the nipples are almost on a level with the knees. Here the surface of femoro-abdominal contact is so increased that the thighs approach still closer to the umbilicus —closer, however, on one side (the left) than upon the other, owing to one foot being slightly in advance of the other, while the body leans a little towards the left side.

The unilateral pressure of the thigh, even in the virgin, where one limb is kneeling and the other squatting, is well shown in Figs. 9 and 10, representing, respectively, "Venus at the Bath" and "The Crouching Venus," which the au-

thorities of the Corcoran Art Gallery have kindly permitted me to photograph from casts of the originals.[1]

In the squatting posture, with both feet flat upon the ground, it is somewhat difficult, either in man or woman, to balance the body for any length of time without some support by the superior extremities, as is shown in Fig. 8; and the posture is rendered still more insecure (provided there be no added manual support) when the toes of both feet are exactly on a line transversely—that is, when one foot is *not* in advance of the other in any degree. Any one can demonstrate this by

FIG. 10.—"The Crouching Venus."

experiment on himself. It would therefore be next to impossible in the squatting posture, especially in a pregnant woman, to assume this position in such a manner as to render the antero-lateral pressure of the thigh-pillars *exactly alike*, in direction and degree, *on both sides*. Even the muscular savage woman,

[1] The photographs from life, though presenting such varied appearances of the abdomen, were all taken within an hour. The woman was placed upon a table, only a little below the level of the camera. The photographing was done by Mr. Max Hausmann, of Washington, D. C., a medical student of the Columbian University.

the negress, when squatting with both feet flat, will have one foot in advance of the other, and still grasp a stake or tree with her hands to steady the body, as shown in Fig. 11.

In this figure it will be observed that the inner and upper border of the thigh-column almost touches the umbilicus; the uterus is poised between the two diverging thighs, the antero-lateral pressure upon the abdomen gradually diminishing in degree towards the woman's knees, but maintaining its maximum degree deep down towards the line of Poupart's ligament near

FIG. 11.

FIG. 12.

FIG. 11.—Posture of the negresses in the Unyoro tribe of Central Africa. (From Witkowski's "Histoire des Accouchements," p. 409.)

FIG. 12.—Posture of women among the Mexican half-breeds. (From Witkowski's work above cited, p. 422.)

the acetabulum. It scarcely seems probable that an oblique position of the child could maintain itself with the woman in such a posture.

Another illustration of thigh-pressure may be seen in the posture of the Mexican half-breeds, who steady themselves during labor by grasping a suspended horizontal bar or stick of wood, as shown in Fig. 12.

That in certain *sitting* postures thigh-pressure constitutes a factor in maintaining the normal position of the child may be

FIG. 13.—Kaffir woman in labor.

FIG. 14.—Sioux squaw in labor.

inferred from Figs. 13 and 14, representing the Kaffir woman and Sioux squaw in labor (taken from Engelmann's paper, Am. Gynec. Trans., 1880, pp. 196 and 226).

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Reverting once more to the squatting posture, which was probably the most ancient and primitive of all positions during childbirth, and recalling the tendency to grasp some support with the hands in order to facilitate balancing the body, it is interesting to note that the civilized woman of the present age, even though recumbent during labor, still preserves the instinctive desire to *grasp something with her hands* during the pains, no matter whether she pull on it or not. Can this instinct be a rudimentary survival of the ancestral habit of grasping a stake, etc., while in a squatting posture? And does it suggest that this posture was common with the ancestors of modern woman?

8. *The influence of thigh-pressure in obviating the causes of malpresentation.*—The most common and potent of these causes will here be considered separately. First: *Obliquity of the uterus.* This obliquity, whether lateral as in transverse and face presentations, or in the direction of anteversion as in cases of pendulous abdomen, can scarcely fail of correction when the womb is forcibly compressed, in a squatting posture, by the femoral columns on each antero-lateral region of the abdomen. In fact, the pregnant uterus, while the woman assumes this posture, will be contained in a sort of *truncated cone formed by three pillars*, viz.: the woman's lumbar vertebræ behind and a thigh-pillar on each antero-lateral region of the abdomen. Considering the *power* of the thigh-pressure and the *gliding surfaces* of the apposed uterine and abdominal peritoneal layers, and remembering the facility with which the hands of the obstetrician can lift the oblique uterus into line by external manipulation, it seems almost incredible that thigh-pressure, in the manner stated, would *not* rectify the obliquity. Second: *Laxity of the uterine and abdominal muscles.* This is one of the conditions accounting for the greater frequency of malpresentations in multiparæ. But when these muscular walls have not sufficient tonicity to maintain the fetus and womb in their normal position, how can we conceive of anything better adapted to reinforce the relaxed muscles, or to take their place, than the *two cushioned pillars of the thighs* forming the antero-lateral columns of the cone-shaped support already mentioned? In fact, the uterine and abdominal walls being relaxed, the influence of external thigh-pressure in rectifying abnormal position of the fetus would be all the more potent

and effective. Third: *Excess of liquor amnii.* The influence of thigh-pressure in obviating this cause of malpresentation is not so evident. In a pronounced case, with great uterine distention—the child, too, being usually small in size—the bulk of the fluid would, it may be supposed, intervene between fetus and uterine wall, so that the thigh-pressure could hardly reach the body of the child. Still there is this to be said: In a primitive woman with hydramnios, who resorted to a squatting posture in defecation during pregnancy, it is not improbable that compression of the womb by thigh-pressure would lead to rupture of the amnion and discharge of the fluid *while in this posture;* then, as the uterine distention lessened, the thigh-pillars *would* impress the child and divert it from a transverse presentation. But dropsy of the amnion is an uncommon and distinctly abnormal condition, so far removed from natural labor as to be rather out of place in this discussion. And the same may be said of a *narrow pelvic brim* and of *placenta previa*, which are additional causes of transverse presentation. The occurrence of malpresentation in *twin* cases would probably meet with its correction or prevention by thigh-pressure as in single pregnancies.

9. *Relative frequency of malpresentations among women who do and those who do not assume the squatting posture during defecation and labor.*—So far as I have been able to discover, there is not much evidence on this point; perhaps it has never been sought for. While transverse presentation does occur among primitive peoples, as observed on the borders of civilization at the present time, it has been found to be *a rare occurrence.* Dr. Engelmann tells us that a physician residing eight years among the Canadian Indians knew of no accident and heard of no death in childbed; and another, living four years with the Oregon Indians, was not aware of any irregularity occurring during that time, nor was he ever called upon to perform a serious operation (AM. JOURN. OBSTET., July, 1881, p. 608). He, however, speaks of cases of "malpresentation" and "shoulder presentation" among the Nez-Percés Indians (ibid. p. 611) and the women of the Green Bay Indian Agency (p. 609), and states that in such cases "the mother is generally doomed"; the child cannot be born, and death follows. "Dr. Williams has observed that the Pawnees are more exempt from accidents than the Menomonees, and inquires whether it

is on account of the squatting posture assumed by the Pawnee women in labor" (ibid. p. 609). He does not mention the factor of thigh-pressure.

I had hoped to find evidence on this matter in the published histories of recorded cases of "spontaneous version or rectification" among our own people. For this purpose I have examined about one hundred journal articles under the captions of "Spontaneous Version" and "Spontaneous Evolution" (from manuscript cards on those subjects prepared for the catalogue of the library of the surgeon-general's office, kindly placed at my disposal by Drs. Billings and Fletcher). These *references* cover at least two hundred *cases*, but most of them (a good majority) are cases of spontaneous evolution instead of turning. And of the cases of spontaneous version, the posture and *changes of posture of the woman are often not mentioned.* Moreover, some of them are cases in which original head and breech presentations were spontaneously turned or converted into shoulder cases. On the whole, I must confess this field of research afforded no conclusive evidence in support of the views I have here presented, although there are a few cases in which spontaneous version was found to have occurred while the patient was out of bed using the night stool; or immediately after being placed in a bath; or after being placed in position for the operation of turning; or, again, after the woman had become ungovernable, tossing about in every posture; or after she had "sat up in bed because it was the easiest position"—cases which suggest, but do not prove, that the factor of thigh-pressure *may* have contributed to turn the child.

10. *Version by external manipulation, as now practised, an unconscious imitation of thigh-pressure; Maxon's method considered.*—Every one who has practised external version in transverse presentations, or who will read the orthodox description of that maneuvre, will see that the hands of the obstetrician—the one pressing the cephalic end of the fetal ovoid towards the pelvic brim, the other lifting the breech end upwards and inwards towards the fundus uteri—are doing exactly what I have shown the pressure of the two thighs may do in the squatting posture (see section 6 of this article). And besides, the *direction* of the thigh-pressure on each side, even the desired *character* of the pressure—viz., "half-sliding and

half-pushing" (Lusk, p. 370, quoting Barnes), "the sliding, gliding movement" (P. F. Mundé in AM. JOUR. OBSTET., April, 1880, p. 344), "series of gentle, gliding movements" (Playfair, p. 460, 4th American edition)—are necessarily executed by the thighs gliding against the abdominal wall every time the slightest variation is made in their abduction and adduction, or in the degree of forward inclination of the woman's body, etc., as before explained.

It is quite probable that the effect of Maxon's method in facilitating version is not due, as he thought, altogether to gravitation of the child towards the fundus, but also, in part, to thigh-pressure; for, be it noted, he not only placed the woman in the knee-chest position, but also insisted that the knees, instead of being on the same level as the chest, should *rest upon several pillows or a roll of folded quilts.* Such a posture would bring the *thigh-columns forcibly in contact with the antero-lateral regions of the abdomen*, and the woman, while thus wrong-side-up, would have her thighs and abdomen bearing somewhat the same relation to each other as would occur in a squatting posture.

11. *Thigh-pressure in the rectification of face presentation.*—Since the most common cause of face presentation is obliquity of the uterus, the rectification of this obliquity by thigh-pressure in the manner previously stated will be obvious, particularly so in the more usual mento-posterior "*positions*" of the face. Schatz's method of converting a face into a vertex presentation by external manipulation, early in labor, would appear to be quite possible of imitation by a suitable selection of posture to secure the kind and direction of thigh-pressure necessary to accomplish the desired conversion. By reference to the figures, it will be apparent that the thigh-pressure on either side of the abdomen may be varied in its *location*, *direction*, and *degree*, according to the posture selected by the obstetrician.

12. *Concluding remarks.*—Few of us, perhaps, realize the frequency with which the fetus changes its attitude during the latter weeks of pregnancy, especially in multiparæ who are not restricted as to changes of posture in themselves. Even the alleged constancy of position (of the fetus) in *primiparæ* during the last three weeks, has been denied by Karl Schroeder ("Manual of Midwifery," Carter's translation, p. 29), who found changes of fetal position at this time in eighty-one out of two

hundred and fourteen *primiparous* cases. A transverse position was changed to a head in six instances, a transverse to a breech once, a head to a transverse once, and a breech to a head once. But this only states the *observed* changes: it does not and cannot state the *un*-observed ones, for to ascertain these latter the woman and her child would require to be watched during the entire twenty-four hours, from noon till midnight, and the examination repeated after every change of the woman's posture likely to alter that of the child. And this leads us to the not improbable inference that the assumed constancy of fetal posture in any case is rather abnormal than otherwise, and would not occur if normal freedom of posture or of postural change were as unrestricted in civilized as in primitive woman.

Nor do most of us fully appreciate the *real facility* by which the child is moved, not only during pregnancy but during labor. "Those of us who have given attention to this subject," says Prof. Isaac E. Taylor (this journal for July, 1881, p. 534), "notice how easily it can be effected, when the breech or shoulder presents, by making it a head, or the head a breech; and sometimes it is done by *only a few touches of the finger on both sides of the abdomen*, and even after the evacuation of the waters." In the face of these facts, the very *powerful* pressure of the thigh-lever upon the abdomen, as a factor in changing the attitude of the child, cannot be ignored.

Velpeau tells us (Meig's translation of V.'s "Midwifery," p. 455) that the ancients were not wholly unaware of the passive movements undergone by the fetus *in utero*, since they advised, for the purpose of bringing the head to the strait, that the woman should be shaken or assume certain positions; and that the moderns have established a rule "that the position of the child, while still inclosed in the membranes, is so variable that, in order to fix it, it becomes necessary to rupture the ovum, choosing a moment when the head corresponds to the centre of the pelvis." Velpeau also refers to "certain attitudes of the woman long persisted in" as one of "the principal causes of bad positions of the fetus" (p. 455, ibid.) In this connection it is interesting to remark that primitive woman, when observing a flow of fluid from her genitals due to rupture of the amnion, would most probably *at once assume a squatting posture* as in urination (in fact, some of our modern women do so), and thus, if there be any truth in my thigh-pressure theory, the

pressure would be at once applied at the right moment to get and preserve the long axis of the fetus in line with that of the womb, in which correspondence it would now be maintained by the uterine walls after the evacuation of the waters.

It is a not uncommon history of transverse presentations, among our own women, for the waters to break and be discharged at the beginning of labor, and after only slight pains, and then for the pains to cease entirely for hours or even days, as if the womb were waiting for something to occur and correct the malpresentation. In primitive woman, the thigh-pressure of a squatting posture probably constituted the missing "something" by which rectification and progress were secured. Why should not modern woman, in similar cases, be amenable to the same treatment? On the other hand, there are numerous cases on record among our own women where the rectification of a transverse presentation has occurred—though usually after long delay—while the woman remained recumbent, and numerous hypotheses, such as "irregular uterine contraction," or "uterine retraction," etc., have been suggested to account for or explain them. They have been ably discussed by Dr. I. E. Taylor in the article previously referred to (this journal for July, 1881, pp. 525–551). These cases only tend to show what Nature can accomplish in time, even under adverse circumstances. They by no means disprove that thigh-pressure produced by posture would not be a safer and speedier method of rectification. If the thigh-pressure method be the *natural* one, then it is the better and should be utilized by art. But this, as I have said, requires clinical demonstration. My only hope in this paper is to have presented the theory with sufficient clearness and plausibility to invoke clinical experiment.

The practical utility of the method proposed must not, however, be confined to the mere rectification of malpresentations early in labor. I see no reason why it should not serve a good purpose in cases long delayed, even with protrusion of the arm and shoulder, and where version by ordinary methods is found to be difficult or impossible from partial impaction of the fetus and tight contraction of the womb. In some of these cases, even where the arm has repeatedly been pulled upon by a midwife or obstetrician, or in which an embryotomy operation has been begun, or in which version has been attempted and failed—even in these cases, after very long delay, the arm has

been spontaneously withdrawn, and the head or breech has come down in its stead. Others have been turned by the Foster method of using the humerus to make pressure upon the glenoid cavity and thus change the presentation; and others again by Maxon's method, previously cited. The great desideratum in these cases is to *lift up* the presenting shoulder above the superior strait by main force, which is never done without danger of uterine or vaginal rupture. Is it not probable that a suitable adjustment of the thigh-levers, secured by suitable posture, could accomplish this forcible elevation of the presenting shoulder more safely than by the orthodox methods previously named? If it did no good, the experiment would at least possess the virtue of being harmless.